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ABSTRACT

Supply and demand considerations will affect the labor market for doctoral scientists and engineers in the United States over the next 10 to 15 years. These changes will be due in some measure to projected slow growth in R and D funding, which will result in a lower growth rate in the demand for personnel with advanced R and D capabilities, the traditional strength of Ph.D. scientists and engineers. Thus, doctoral-level scientists and engineers, particularly those newly entering the job market, will be influenced to consider nontraditional job opportunities. At the same time, it is expected that projected decreases in the number of science and engineering enrollments in educational institutions will result in a shift from academic to nonacademic employment. If such a shift is realized, business and industry, the principal center of nonacademic employment of doctoral scientists and engineers, will assume increasing importance in the future utilization of scientists and engineers. (Author)

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Reviews OF DATA ON SCIENCE RESOURCES

NATIONAL SCIENCE FOUNDATION, WASHINGTON, D.C.

NSF 76-302

No. 25, April 1976

Doctoral Scientists and Engineers in Private Industry, 1973

Introduction

Recently, considerable attention has been focused on supply and demand considerations affecting the labor market for doctoral scientists and engineers in the United States over the next 10 to 15 years. Although there are variations among specific forecasts and projections with respect to the details of supply and demand imbalances, there is general agreement that employment patterns of doctoral scientists and engineers will undergo significant changes during the next decade. These changes will be due in some measure to a projected slow growth in R&D funding which will result in a lower growth rate in the demand for personnel with advanced R&D capabilities, the traditional strengths of Ph.D. scientists and engineers. Thus, doctorate-level scientists and engineers, particularly those newly entering the job market, will be

influenced to consider nontraditional job opportunities. At the same time, it is expected that projected decreases in the number of science and engineering (S/E) enrollments in educational institutions will result in a shift from academic to nonacademic employment. If such a shift is realized in the future, business and industry, the principal center of non-academic employment of doctoral scientists and engineers, will assume increasing importance in the future utilization of this important human resource in the Nation's scientific enterprise. Thus, it is prudent to understand the characteristics of the doctoral scientists and engineers who are presently employed in the industrial sector of the U.S. economy. The following presentation is directed toward this end.

1973 Labor Force of Doctoral Scientists and Engineers

The population of doctoral scientists and engineers in the United States in the spring of 1973 was 244,900. Slightly more than 6 percent of this population were not seeking employment, gave no report of their employment status, were retired, or otherwise not in the labor force. Thus, the labor force numbered

This publication evolves out of the National Science Foundation's Manpower Characteristics System which was established to provide manpower data needed by many individuals and groups, particularly those engaged in science and engineering policy activities. A characteristic feature of the System is that information is collected from individual scientists and engineers rather than from other sources; e.g., employers, professional societies, etc. Consequently, considerable information on personal and professional characteristics can be obtained which is otherwise not available.

The basis of this report is the first survey, in a biennial series, of the Doctoral Roster of Scientists and Engineers, conducted for the National Science Foundation by the Commission on Human Resources of the National Academy of Sciences. Surveys of the Doctoral Roster constitute the data collection mechanism for one element of the Manpower Characteristics System which, when combined with other elements (i.e., the National Sample of Scientists and Engineers and Surveys of New Entrants to Science and Engineering) provide information on the magnitude and characteristics of the Nation's scientific and engineering human resources.

(Prepared in the Manpower Characteristics Studies Group, Division of Science Resources Studies)

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229,400, including approximately 2,600 individuals who were not employed and seeking employment, giving rise to an unemployment rate of 1.2 percent.

At that time, the employed labor force of doctoral scientists and engineers numbered 226,800. Educational institutions provided the largest sources of employment accounting for almost three-fifths (58 percent) of the total employed. Of the remaining individuals, over one-half were employed by business and industry and slightly less than one-fifth by the Federal Government. The remaining individuals in the employed doctoral S/E labor force, numbering about 26,000, were distributed more or less evenly among other employers. Thus, while nonacademic employment encompassed a variety of employment settings, business and industry provided the principal source of such employment (chart 1).

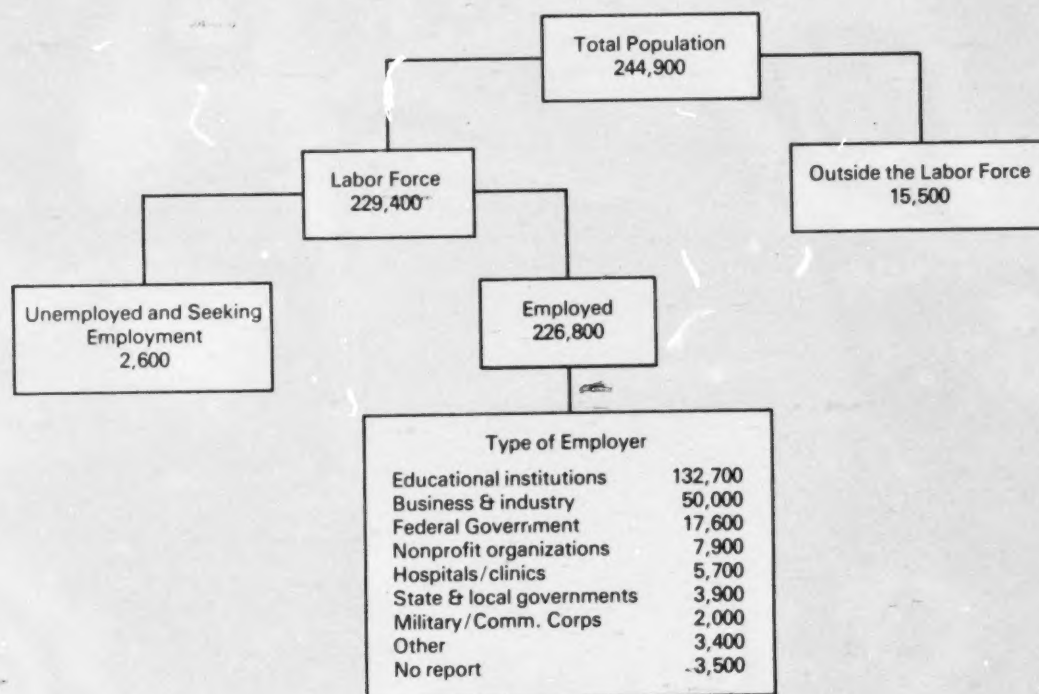
General Characteristics

What are the characteristics of the industrially employed group and how do they differ from those employed elsewhere?

In 1973 the great majority of doctoral scientists and engineers in private industry were white males who were employed full time in S/E-related positions. Of the 50,000 doctoral employees of industry, less than 6 percent held positions not related to science and engineering and only 2 percent were employed on less than a full-time basis. Almost three-fourths were physical scientists and engineers while about the same proportion indicated the performance or management of research and development to be their primary work activity although the extent of involvement in R&D activities was considerably less in some fields (charts 2 and 3 and table B-1).

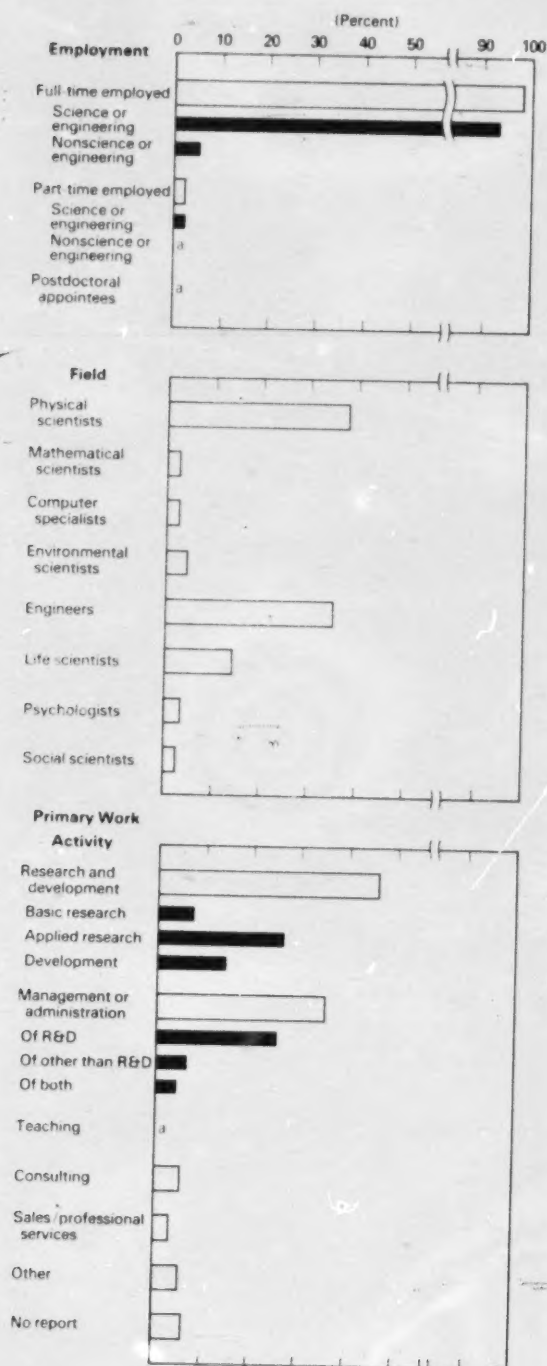
In 1973, doctoral scientists in industry numbered 32,700, an increase of 17 percent over 1970 and 56 percent over 1966, an average annual increase of about 7 percent. In 1966 and 1970, the proportion of physical scientists in the doctorate-holding industrial labor force of scientists remained stable at about 70 percent. In 1973, however, doctorate-holding physical scientists comprised less than 60 percent of the Ph.D. scientists in industry. The relative decline in the number of physical scientists was in contrast with a general

Chart 1. Distribution of doctoral scientists and engineers: 1973



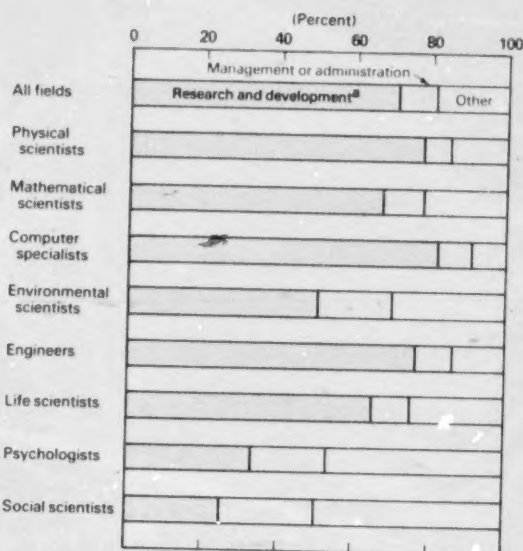
Note: Detail may not add to totals because of rounding.
SOURCE: National Science Foundation.

Chart 2. Distribution of doctoral scientists and engineers in business and industry: 1973



^aLess than 0.5 percent.
Note: Detail may not add to totals because of rounding.
SOURCE: National Science Foundation.

Chart 3. Distribution of doctoral scientists and engineers in business and industry, by field and primary work activity: 1973

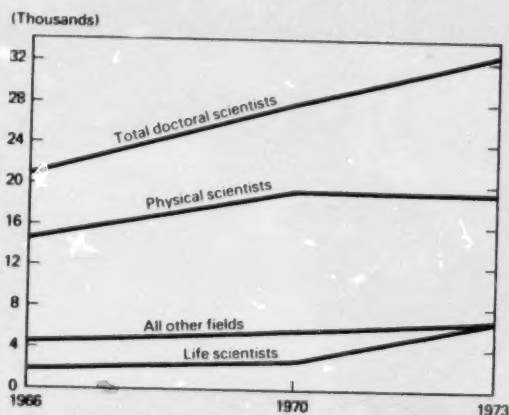


^aIncludes management or administration of R&D.
SOURCE: National Science Foundation.

increase in most other fields, notably, among life scientists, who increased in number from less than 2,000 in 1966 to almost 7,000 in 1973, an average annual increase of about 20 percent (chart 4).

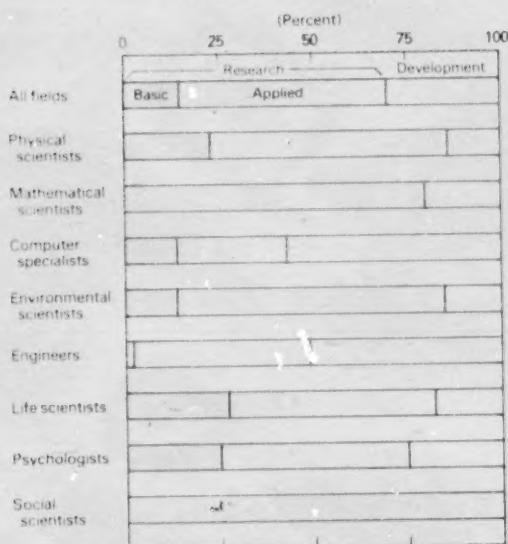
Of the 50,000 Ph.D. scientists and engineers in private industry, almost one-half cited the *performance* (excluding management) of research and development as their primary work activity. More than one-half of this group were engaged primarily in applied

Chart 4. Doctoral scientists employed in business and industry: 1966, 1970, and 1973



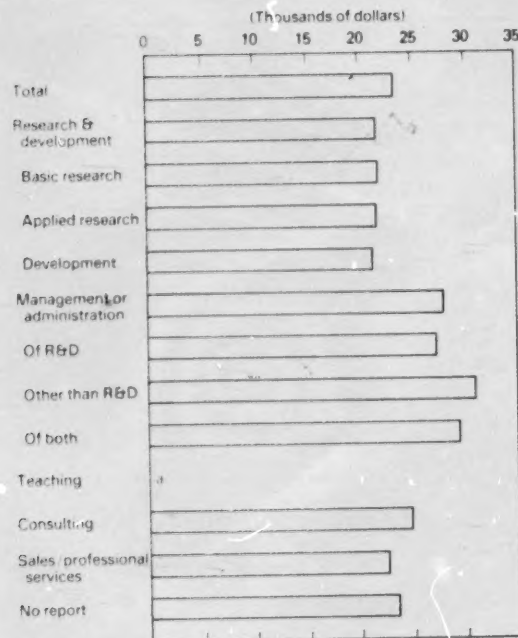
SOURCE: National Science Foundation.

Chart 5. Distribution of doctoral scientists and engineers in business and industry engaged in R&D, by field and character of work, 1973



SOURCE: National Science Foundation

Chart 6. Median annual salaries of doctoral scientists and engineers in business and industry, by primary work activity, 1973



^aNo median computed for groups with fewer than 25 individuals reporting salary.
Note: Median salaries computed only for full-time employed.
SOURCE: National Science Foundation.

research. Applied research was, in fact, the dominant R&D activity among industrial doctorate holders in all fields except in the case of computer specialists and engineers who were more heavily involved in development activities. Generally, the performance of basic research assumed a subordinate role in the work of doctoral scientists and engineers engaged in industrial R&D activities. More physical scientists and life scientists, however, were occupied with basic research than with development and two other groups (environmental scientists and psychologists) had approximately the same number working in basic research as there were in development (chart 5).

Salaries of doctoral scientists and engineers in industry were 12 percent higher than the overall median salary of \$20,900, although there were substantial differences among industrially employed groups (table B-4). Considered solely by field, for example, economists, the highest paid, reported salaries 31 percent higher than the industrywide median of \$23,400, and 38 percent higher than the salaries of industrially employed agricultural scientists, the lowest paid.

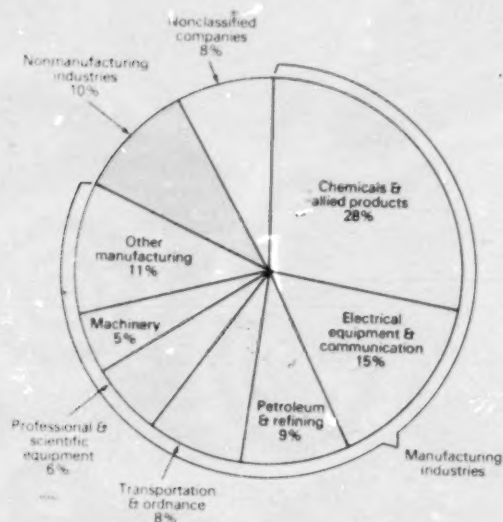
Substantial differences in salaries were also reported by individuals engaged in various work activities (chart 6). As a group, individuals engaged in the performance of research and development were the lowest paid; managers or administrators the highest. Only small differences in the salaries of basic researchers, applied researchers, and developers were noted. R&D managers or administrators, however, were paid substantially less (\$3,700 per year) than managers or administrators in non-R&D activities.

Employment Characteristics Within Industry Groups

In 1973 manufacturing organizations employed four-fifths of the doctoral scientists and engineers in business and industry. Six industrial manufacturing groups¹—chemicals and allied products, electrical equipment and communication, petroleum and refining, transportation and ordnance, professional and scientific equipment, and machinery—employed almost seven-eighths of the doctoral scientists and engineers in manufacturing industries and over two-thirds of the total number in industrial employment. Nonmanufacturing industries and nonclassified companies accounted for the remainder of those industrially employed (chart 7 and tables B-2 and B-3).

¹ For definition of industry groups, see technical notes.

Chart 7. Distribution of doctoral scientists and engineers in business and industry, by industry group: 1973



SOURCE: National Science Foundation

The demand for Ph.D. scientists and engineers in manufacturing industries is not surprising since these industries are considered to be highly "R&D intensive." Yet there was found to be a considerable degree of variability in this demand even among the highly R&D intensive industries. The *chemical* industry, for example, provided the largest relative source of employment for Ph.D. scientists and engineers who numbered 13.2 per 1,000 employees, a ratio about eight times higher than that for the *machinery* industry, in spite of the fact that both of these industries devoted about the same percentage of net sales to research and development. The *petroleum and refining* industry, on the other hand, devoted a smaller percentage of net sales to research and development, yet had a large Ph.D.-to-employee-ratio (8.5 to 1,000—table 1).

TABLE 1.—MEASURES OF RESEARCH AND DEVELOPMENT AND PH.D. INTENSIVENESS: 1973

Manufacturing industry	Percent of net sales devoted to R&D	Ph D. scientists and engineers per 1,000 employees
Total	3.2	2.9
Chemicals and allied products	3.5	13.2
Electrical equipment and communication	7.1	3.0
Petroleum and refining	7	8.5
Transportation and ordnance	6.7	1.7
Professional and scientific equipment	5.6	5.8
Machinery	3.8	1.6
Other manufacturing	.7	.9

SOURCE: National Science Foundation

Considered by industry group, only small differences in salary are noted, although doctoral scientists and engineers in nonclassified companies, reported salaries 9 percent higher than the industrywide median. Differences in salaries, by primary work activity, were considerably greater. In general, salary patterns within industry groups, however, did not differ substantially from the overall pattern. Thus, relatively small differences were noted in the salaries of basic researchers, applied researchers, and developers; R&D managers or administrators were paid less than managers or administrators of non-R&D activities (table 2).

Chemicals and allied products—The chemical industry employed the largest number of doctoral scientists and engineers in the private sector, accounting for 35 percent of those in manufacturing activities and over 28 percent of the total in industrial employment. Although chemists comprised the largest single field (58 percent) in this industry, engineers and biological and medical scientists collectively accounted for an additional 35 percent. The performance or management of R&D was cited as the primary work activity by 75 percent of the doctorate holders in this industry as compared with 71 percent among all industrially employed. This increase may be accounted for by the more significant role which basic research assumed in this industry; 11 percent of those in the chemical industry were engaged primarily in basic research as compared with a level of 7 percent in all of private industry.

Electrical equipment and communication—About three-fifths of the doctorate holders in this industry were engineers, who with physical scientists, accounted for nearly seven-eighths of the total. Examination by primary work activity also reveals that seven-eighths of the total were primarily engaged in the performance or management of research and development. Only 9 percent of those engaged in R&D performance were in basic research as compared with a level of 15 percent, industrywide.

Petroleum and refining—Physical scientists and engineers, representing three-fourths of the doctoral scientists and engineers in private industry in 1973 also accounted for three-fourths of the doctorate holders in this industry group. In addition, the petroleum and refining industry was the principal employer of environmental scientists who accounted for almost one-fifth of the doctorate holders in this industry and two-fifths of the doctorate-holding environmental scientists employed in all of industry. The proportion of individuals engaged in the performance or management of research and development in this industry was commensurate with the industrywide level of 72

TABLE 2.—MEDIAN ANNUAL SALARIES OF DOCTORAL SCIENTISTS AND ENGINEERS IN BUSINESS AND INDUSTRY, BY PRIMARY WORK ACTIVITY AND INDUSTRY GROUP: 1973

Primary work activity	Manufacturing industry							
	Total	Chemicals & allied products	Electrical equipment & communication	Petroleum & refining	Transportation & ordnance	Professional & scientific equipment	Machinery	Non-manufacturing industries
Total	\$ 23,400	\$ 23,000	\$ 23,700	\$ 23,700	\$ 23,400	\$ 23,600	\$ 23,800	\$ 23,500
Research and development	21,700	21,200	22,100	22,100	22,100	22,200	22,500	22,100
Basic research	21,800	21,200	(¹)	22,500	21,100	21,800	24,400	(¹)
Applied research	21,700	21,400	22,100	22,000	22,300	22,300	22,500	20,600
Development	21,400	20,700	22,000	22,200	22,000	22,300	21,900	20,500
Management or administration	28,100	27,200	27,700	29,500	27,500	28,500	29,700	28,900
Of R&D	27,300	26,700	27,400	27,300	27,100	28,100	29,300	29,200
Other than R&D	31,000	29,000	32,200	33,200	(¹)	(¹)	31,100	35,500
Of both	29,400	29,200	28,000	37,000	28,100	(¹)	(¹)	25,400
Consulting	24,900	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	22,100
Sales/Professional services	22,700	22,800	(¹)	(¹)	(¹)	(¹)	(¹)	23,900
No report	23,600	23,900	(¹)	23,800	22,700	(¹)	(¹)	21,100

No median salary computed for groups with less than 20 individuals reporting salary.
 Note: Median salaries computed only for full-time employed.
 SOURCE: National Science Foundation.

percent. The number of applied researchers, however, was relatively high, with two-thirds of those performing research and development engaged in this activity, as compared with about one-half industrywide.

Transportation and ordnance—Almost two-thirds of the doctorate holders in this industry group were engineers, who together with physical scientists accounted for 90 percent of the total. Research and development played a predominant role in the activities of Ph.D. scientists and engineers in this industry with 85 percent engaged primarily in R&D performance or management, 14 percentage points higher than the total industry level.

Professional and scientific equipment—Physical scientists accounted for the largest proportion in this industry, outnumbering doctoral engineers about 3 to 1. Collectively, physical scientists and engineers comprised over four-fifths of the doctorate holders in the industry. As in the case of the *electrical equipment and communication* and the *transportation and ordnance* industry groups, the proportion of those engaged in R&D performance or management was substantially higher than the total industry level.

Machinery—One-half the doctorate holders in this industry were engineers, who outnumbered physical scientists almost 2 to 1. R&D performance—the dominant activity of doctoral scientists and engineers in this industry—was accounted for, in great measure,

by the large proportion of individuals engaged in development activities; i.e., almost one-half of those in research and development as contrasted with less than one-third industrywide.

Nonmanufacturing—About two-fifths (39 percent) of the doctorate holders in nonmanufacturing industries were engineers, a level of employment higher than might be expected, considering that engineers accounted for only one-third (34 percent) of the doctorate holders in manufacturing industries. This apparent "over-representation" of engineers is offset by a smaller proportion of physical scientists who accounted for only 14 percent in nonmanufacturing industries as compared with 43 percent in manufacturing industries. The extent of involvement in R&D activities on the part of doctorate holders in nonmanufacturing industries was, however, substantially less than that of their peers elsewhere in industry; about one-half were so involved as compared with almost four-fifths in manufacturing industries. The preponderance of Ph.D. scientists and engineers in nonmanufacturing industries were employed by "service" industries, notably computer and other data processing services, medical and other health services, and miscellaneous business and other services. Highest salaries were reported by those individuals employed by finance, insurance and real estate companies (tables 3 and B-2).

TABLE 3.—NUMBER AND MEDIAN ANNUAL SALARIES OF DOCTORAL SCIENTISTS AND ENGINEERS EMPLOYED IN NONMANUFACTURING INDUSTRIES: 1973

Nonmanufacturing industries	Number	Median annual salary
Total	5,100	\$23,500
Agriculture, forestry, and fisheries	400	20,600
Mining	300	23,000
Contract construction	200	24,400
Wholesale and retail trade	400	19,400
Finance, insurance, and real estate	600	26,500
Services	3,000	23,500
Other	300	

Note: Detail may not add to totals because of rounding.
SOURCE: National Science Foundation

Employment Characteristics Within Various Sectors of the Economy

In what ways do the characteristics of the industrially employed group differ from those employed elsewhere?

In some respects, little variability is evident as a result of employment affiliation. With respect to age, for example, only minor differences in median age from employer to employer exist; the median age of doctoral scientists and engineers affiliated with 7 of the 10 identified employer groups (accounting for 96 percent of those employed) differed from the overall median age of 41 by one year or less. The lower median age of doctorate-holding scientists and engineers in the military service or in the Commissioned Corps may well reflect fulfillment of a service obligation on the part of young Ph.D's which was incurred as a result of educational support.

TABLE 4.—DOCTORAL SCIENTISTS AND ENGINEERS BY TYPE OF EMPLOYER, PERCENT RACIAL MINORITY, AND MEDIAN AGE: 1973

Type of employer	Total number employed	Racial minorities (percent)	Median age
Total employed	226,800	6.0	41
Business and industry	50,000	7.2	40
Educational institutions	132,700	5.9	41
Hospitals/Clinics	5,700	5.0	40
Nonprofit organizations	7,900	5.6	40
Federal government	17,600	3.9	42
Military/Commissioned Corps	2,000	2.1	36
State government	2,600	6.1	42
Other government	1,300	9.2	40
Other	3,400	2.9	44
No report	3,500	8.9	46

Those not reporting racial status have been redistributed proportionately among racial categories.

Note: Detail may not add to totals because of rounding.
SOURCE: National Science Foundation

Some differences were found among sectors in the employment of racial minorities; business and industry, for example, employed a higher proportion of racial minorities than the average for all employers, whereas the Federal establishment (encompassing both civilian and military personnel) employed a smaller proportion of racial minorities than other employers generally (table 4).

The employment of women doctoral scientists and engineers in different employment settings exhibits greater variability. Table 5 shows that women, who represented less than 1 in 10 of the employed doctoral labor force, accounted for an even smaller proportion employed by business and industry and the Federal Government. In contrast, one-fifth of the doctoral scientists and engineers employed by hospitals/clinics were women. But although the proportion of women employed in industry and the Federal Government was less than in other employment sectors, their salaries were markedly higher. The median annual salaries of women in industry and the Federal Government exceeded the overall median women's salary by 14 percent and 28 percent, respectively.

The median annual salaries of doctorate-holding men and women (combined) shows similar variability. Annual salaries about 12 percent higher than the overall median salary of \$20,900 were reported by employees of business and industry and the Federal Government. However, differentially higher salaries were evident among fields, ranging from salaries about 4 percent higher for engineers to salaries more than 33 percent higher for social scientists.

Variability is also evident in the patterns of employment, by field, among employers. From table 5 it is seen that business and industry, which accounted for less than one-quarter of the doctoral scientists and engineers in the employed labor force, provided a major source of employment for physical scientists, computer specialists, and engineers. In fact, physical scientists and engineers, representing about three-eighths of the employed labor force of doctoral scientists and engineers in 1973, accounted for almost three-fourths of those in industry as compared with about one-fourth in nonindustrial settings.

The employment of doctorate-holding physical scientists, computer specialists, and engineers in industry was in marked contrast with their peers in other fields, who were employed principally in nonindustrial settings. For the most part, educational institutions provided the largest source of such employment. Thus, almost three-fourths of the mathematical, life, and social scientists in the employed labor force of doctorate-holding scientists

TABLE 5.—SELECTED CHARACTERISTICS OF DOCTORAL SCIENTISTS AND ENGINEERS, BY TYPE OF EMPLOYER: 1973

Characteristic	Total employed ¹		Business & industry		Educational institutions		Hospitals & clinics		Nonprofit organizations		Federal Government ²	
	Number	Median annual salary ³	Number	Median annual salary	Number	Median annual salary	Number	Median annual salary	Number	Median annual salary	Number	Median annual salary
Total	226,800	\$20,900	50,000	\$23,400	132,700	\$19,300	5,700	\$19,600	7,900	\$22,200	17,600	\$23,700
SEX												
Men	209,400	21,200	49,100	23,500	120,400	19,500	4,500	20,200	7,200	22,500	16,800	(⁴)
Women	17,300	17,600	900	19,700	12,300	17,100	1,200	17,500	700	17,900	800	22,100
FIELD												
Physical scientists	49,100	21,200	19,200	23,000	22,000	18,700	300	18,900	1,800	21,700	4,100	23,500
Chemists	30,900	21,300	15,300	22,800	11,900	18,300	200	18,400	800	22,100	1,800	23,800
Physicists/Astronomers	18,300 ¹	21,100	3,900	23,800	10,200	19,100	100	(⁴)	900	21,100	2,500	23,300
Mathematical scientists	12,600	19,300	900	24,200	10,700	18,700	(⁴)	(⁴)	200	24,700	500	23,900
Mathematicians	11,100	19,100	700	24,000	9,600	18,600	(⁴)	(⁴)	200	25,300	400	23,800
Statisticians	1,500	20,800	200	25,300	1,100	19,800	(⁴)	(⁴)	(⁴)	(⁴)	100	(⁴)
Computer specialists	2,900	22,100	1,100	22,700	1,500	21,700	(⁴)	(⁴)	100	(⁴)	100	(⁴)
Environmental scientists	10,500	20,700	2,000	23,100	5,300	18,900	(⁴)	(⁴)	500	20,700	2,000	23,900
Earth scientists	8,700	20,700	1,900	23,100	4,300	18,800	(⁴)	(⁴)	300	21,500	1,500	24,100
Oceanographers	1,200	19,400	100	(⁴)	700	18,900	(⁴)	(⁴)	100	(⁴)	200	23,000
Atmospheric scientists	700	22,800	(⁴)	(⁴)	300	21,500	(⁴)	(⁴)	100	(⁴)	300	23,800
Engineers	36,200	22,500	17,300	23,500	13,000	20,900	100	(⁴)	1,300	22,800	2,700	23,500
Life scientists	59,400	20,000	6,800	23,500	39,800	19,000	1,900	20,700	1,800	20,200	5,800	23,200
Biological scientists	37,400	19,500	3,200	23,100	26,900	18,800	1,000	19,700	1,400	19,100	3,300	22,900
Agricultural scientists	11,100	19,800	1,800	22,300	6,900	18,800	(⁴)	(⁴)	100	(⁴)	1,800	22,700
Medical scientists	10,800	23,000	1,800	25,400	6,000	21,500	1,000	22,800	300	24,800	700	26,500
Psychologists	26,000	20,200	1,500	28,300	16,000	19,300	3,400	19,500	1,200	21,800	1,000	24,800
Social scientists	29,900	20,400	1,200	28,000	24,300	19,600	(⁴)	(⁴)	1,200	24,300	1,400	27,300
Economists	8,700	22,300	800	30,700	6,300	20,900	(⁴)	(⁴)	300	27,200	700	26,800
Sociologists/Anthropologists	6,800	19,500	100	(⁴)	6,200	19,400	(⁴)	(⁴)	200	19,800	100	(⁴)
Other social scientists	14,400	19,600	400	25,900	11,800	19,200	(⁴)	(⁴)	600	24,100	700	27,900

¹ Includes listed types of employer and all other employers.² Excludes military personnel and those in the Commissioned Corps.³ Median annual salary computed only for full-time employed civilians.⁴ Less than 50 individuals.⁵ No median salary computed for groups with less than 20 individuals reporting salary.⁶ Data not available.

Note: Detail may not add to totals because of rounding.

SOURCE: National Science Foundation.

TABLE 6.—NUMBER OF DOCTORAL SCIENTISTS AND ENGINEERS, BY PRIMARY WORK ACTIVITY AND TYPE OF EMPLOYER: 1973

Primary work activity	Total employed	Business and industry	Educational institutions	Hospitals/clinics	Nonprofit organizations	Federal Government	Other employers
Total	226,800	50,000	132,700	5,700	7,900	17,600	12,800
Research and development	69,500	23,200	28,200	1,000	4,100	9,900	3,100
Basic research	32,300	3,400	20,200	700	2,000	4,700	1,300
Applied research	28,700	12,800	7,400	300	1,900	4,800	1,800
Development	8,600	6,900	700	100	200	500	300
Management or administration	40,400	17,300	11,400	1,200	2,100	5,400	3,100
Of R&D	22,500	12,500	3,300	300	1,200	3,900	1,400
Of other than R&D	12,100	3,000	5,700	600	600	900	1,300
Of both	5,800	1,800	2,400	300	300	600	400
Teaching	81,700	100	80,100	200	100	200	800
Consulting	4,000	2,300	500	100	200	100	800
Sales/professional services	8,200	1,400	1,900	2,500	300	300	1,900
Other	6,900	2,500	1,800	200	500	800	1,100
No report	15,900	3,200	8,800	600	500	800	1,900

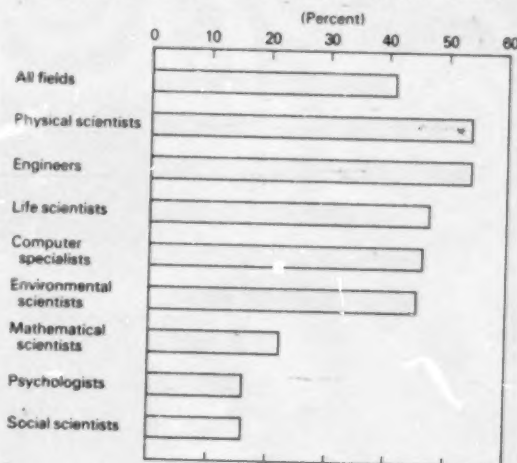
and engineers were employed by educational institutions. The employment of environmental scientists, on the other hand, was distributed more evenly among employers, although even in this case, over one-half were employed by educational institutions.

As would be expected, a very large proportion of the individuals engaged primarily in basic research and teaching were employed by educational institutions. But in other R&D areas, industry provided the dominant employment source. Thus, industry, which employed only 22 percent of the doctoral scientists and engineers in the employed labor force accounted for about one-half of those engaged primarily in applied research and in R&D management or administration, and over four-fifths of those engaged primarily in development activities (table 6).

The concentration of physical scientists and engineers in industry reported earlier, is in consonance with the pronounced involvement of those individuals in R&D activities. Chart 8 shows that about two-fifths of all employed doctoral scientists and engineers were engaged primarily in R&D activities. Among physical scientists and engineers, however, well over one-half cited the performance or management of research and development as their primary work activity. Psy-

chologists, mathematical, and social scientists, who were less involved in R&D activities, were also less extensively employed by industry.

Chart 8. Distribution of employed doctoral scientists and engineers engaged primarily in the performance or management of R&D, by field (all employers): 1973



SOURCE: National Science Foundation

TABLE A-1.—SPECIALTIES LIST USED IN 1973 DOCTORAL ROSTER SURVEY

MATHEMATICAL SCIENCES

- 000 Algebra
- 010 Analysis & Functional Analysis
- 020 Geometry
- 030 Logic
- 040 Number Theory
- 052 Probability
- 055 Nth Statistics (see also 544, 670, 725, 729)
- 060 Topology
- 080 Computing Theory & Practice
- 082 Operations Research (see also 477)
- 085 Applied Mathematics
- 089 Combinatorics & Finite Mathematics
- 091 Physical Mathematics
- 098 Mathematics, General
- 099 Mathematics, Other*

ASTRONOMY

- 101 Astronomy
- 102 Astrophysics

PHYSICS

- 110 Atomic & Molecular Physics
- 120 Electromagnetism
- 130 Mechanics
- 132 Acoustics
- 134 Fluids
- 135 Plasma Physics
- 136 Optics
- 138 Thermal Physics
- 140 Elementary Particles
- 150 Nuclear Structure
- 160 Solid State
- 198 Physics, General
- 199 Physics, Other*

CHEMISTRY**List A**

Fields used to classify academic degrees. Use for Item 9 on questionnaire. Also see note below.

- 200 Analytical
- 210 Inorganic
- 220 Organic
- 230 Nuclear
- 240 Physical
- 250 Theoretical
- 260 Agricultural & Food
- 270 Pharmaceutical
- 298 Chemistry, General
- 299 Chemistry, Other*

List B

Fields used to classify present professional employment. Use for Item 17 on questionnaire. Also see note below for the doctoral field in Item 9.

- 205 Analytical Chemistry
- 215 Synthetic Organic & Organometallic Chemistry
- 225 Synthetic, Inorganic & Natural Products
- 235 Nuclear Chemistry
- 245 Quantum Chemistry
- 255 Structural Chemistry
- 265 Thermodynamics & Material Properties
- 275 Polymers
- 285 Chemical Dynamics

NOTE: Please use List B fields to classify your doctoral degree in Item 9. This is a classification which is requested in addition to the field chosen from List A. Print the List B field beside the doctoral code number from List A.

EARTH, ENVIRONMENTAL & MARINE SCIENCES

- 301 Mineralogy, Petrology
- 305 Geochemistry
- 310 Stratigraphy, Sedimentation
- 320 Paleontology
- 330 Structural Geology
- 340 Geophysics (Solid Earth & Atmospheric)
- 350 Geomorph., Glacial Geology
- 360 Hydrology
- 370 Oceanography
- 380 Meteorology
- 388 Environmental Sciences, General
- 389 Environmental Sciences, Other*
- 391 Applied Geology, Geol. Engr., Econ. Geol.
- 397 Marine Sciences, Other*
- 398 Earth Sciences, General
- 399 Earth Sciences, Other*

ENGINEERING

- 400 Aeronautical & Astronautical
- 410 Agricultural
- 415 Biomedical
- 420 Civil
- 430 Chemical
- 435 Ceramic
- 440 Electrical
- 445 Electronics
- 450 Industrial, Manufacturing
- 455 Nuclear
- 460 Engineering Mechanics
- 465 Engineering Physics
- 470 Mechanical
- 4 Metallurgy & Phys. Met. Engr.
- 4 Operations Research, Systems (see also 082)
- 479 Fuel Technology, Petrol Engr.
- 480 Sanitary/Environmental
- 486 Mining
- 497 Materials Science Engr.
- 498 Engineering, General
- 499 Engineering, Other*

AGRICULTURAL SCIENCES

- 500 Agronomy
- 501 Agricultural Economics
- 502 Animal Husbandry
- 504 Fish & Wildlife
- 505 Forestry
- 506 Horticulture
- 507 Soils & Soil Science
- 510 Animal Sciences
- 511 Phytopathology
- 517 Food Science & Technology (see also 573)
- 518 Agriculture, General
- 519 Agriculture, Other*

MEDICAL SCIENCES

- 520 Medicine & Surgery
- 522 Public Health
- 523 Veterinary Medicine
- 524 Hospital Administration
- 527 Parasitology
- 534 Pathology
- 536 Pharmacology
- 537 Pharmacy
- 538 Medical Sciences, General
- 539 Medical Sciences, Other*

BIOLOGICAL SCIENCES

- 540 Biochemistry
- 542 Biophysics
- 543 Biomathematics
- 544 Biometrics, Biostatistics (see also 055, 670, 725, 729)
- 545 Anatomy
- 546 Cytology
- 547 Embryology
- 548 Immunology
- 550 Botany
- 560 Ecology
- 562 Hydrobiology
- 564 Microbiology & Bacteriology
- 566 Physiology, Animal
- 567 Physiology, Plant
- 569 Zoology
- 570 Genetics
- 571 Entomology
- 572 Molecular Biology
- 573 Food Science & Technology (see also 517)
- 574 Behavior/Ethology
- 578 Biological Sciences, General
- 579 Biological Sciences, Other*

PSYCHOLOGY

- 600 Clinical
- 610 Counseling & Guidance
- 620 Developmental & Gerontological
- 630 Educational
- 635 School Psychology
- 641 Experimental
- 642 Comparative
- 643 Physiological
- 650 Industrial & Personnel
- 660 Personality
- 670 Psychometrics (see also 055, 544, 725, 729)
- 680 Social
- 698 Psychology, General
- 699 Psychology, Other*

SOCIAL SCIENCES

- 700 Anthropology
- 703 Archeology
- 708 Communications*
- 709 Linguistics
- 710 Sociology
- 720 Economics (see also 501)
- 725 Econometrics (see also 055, 544, 670, 729)
- 729 Social Statistics (see also 055, 544, 670, 725)
- 740 Geography
- 745 Area Studies*
- 750 Political Science, Public Admin.
- 755 International Relations
- 770 Urban & Reg. Planning
- 775 History & Phil. of Science
- 798 Social Sciences, General
- 799 Social Sciences, Other*

ARTS & HUMANITIES

- 841 Fine & Applied Arts (including Music, Speech, Drama, etc.)
- 842 History
- 843 Philosophy, Religion, Theology
- 845 Languages & Literature
- 846 Other Arts and Humanities*

EDUCATION & OTHER PROFESSIONAL FIELDS

- 938 Education
- 882 Business Administration
- 883 Home Economics
- 884 Journalism
- 885 Speech and Hearing Sciences
- 886 Law, Jurisprudence
- 887 Social Work
- 891 Library & Archival Science
- 898 Professional Field, Other*
- 899 OTHER FIELDS*

APPENDIX A Technical Notes

In the spring of 1973 the Commission on Human Resources of the National Academy of Sciences-National Research Council (NAS-NRC) conducted a survey of U.S. doctoral scientists and engineers under the sponsorship of the National Science Foundation (NSF). The population sampled consisted of individuals in the United States who either held science or engineering doctorates, or had received doctorates in other fields but were employed in science or engineering. Included in the population were individuals who received their doctorates between January 1, 1930 and June 30, 1972, inclusive. Results of the Doctoral Roster survey can be found in reports issued by NAS¹ and NSF.²

Definitions

The following definitions are provided to permit the effective use of data presented in this report.

Field of science and engineering—The data on *field* were derived from the Specialties List reproduced in table A-1. Respondents were asked to identify the specialty most closely related to their principal employment. The grouping of specialties to form *fields* was accomplished in conformance with the scheme presented in table A-2.

This *field* definition, which is used in this report, differs from the *field* definitions used by the Commission on Human Resources in their report³ based on this survey. Care should therefore be exercised in comparing data from these sources.

Type of employer—Respondents were asked to identify, from a list of categories, the type of organization of their principal employer. *Educational institutions* included junior colleges, 2-year colleges, technical institutions, medical schools, 4-year colleges or universities, and elementary or secondary schools. *Business or industry* was listed as separate and distinct from other nonprofit employer categories which included: *hospital or clinic; U.S. military service or Commissioned Corps; U.S. Government, civilian employee; State government; local or other government; international agency; and nonprofit organization, other than hospital, clinic, or educational institution.*

Primary work activity—This item refers to that activity which respondents considered to be primary in relation to their position. The term "development" includes the development or design of equipment, products, systems or data; "sales/professional services" includes sales, marketing, purchasing, estimating and professional services to individuals but *excludes* consulting which is treated as a separate work activity; the category "other" includes report or other technical writing or editing, production, quality control, and inspection and testing.

¹ This survey was based on a sample of doctoral scientists and engineers included in the Doctoral Roster, a part of the NSF's Manpower Characteristics System.

² National Academy of Sciences, *Doctoral Scientists and Engineers in the United States—1973 Profile* (Washington, D.C.), 1974.

³ National Science Foundation, *Characteristics of Doctoral Scientists and Engineers in the United States, 1973* (NSF 75-312) (Washington, D.C. 20402, Superintendent of Documents, U.S. Government Printing Office), 1975; *Detailed Statistical Tables. Characteristics of Doctoral Scientists and Engineers in the United States, 1973* (NSF 75-312-A) (Washington, D.C. 20550), 1975; and *Reviews of Data on Science Resources*, No. 24, "Work Activities of Employed Doctoral Scientists and Engineers in the U.S. Labor Force, July 1973" (NSF 75-310) (Washington, D.C. 20402, Superintendent of Documents, U.S. Government Printing Office), June 1975.

⁴ See footnote 2.

Salaries—Salary data are derived from information regarding an individual's annual salary before deductions for income tax, social security, retirement, etc., but excluding bonuses, overtime, summer teaching or other payment for professional work. Salaries reported are median annual salaries, rounded to the nearest \$100 and computed for full-time employed civilian scientists and engineers only. Differences between calendar-year salaries (11 to 12 months) and academic-year salaries (9 to 10 months) for scientists and engineers employed in educational institutions have been accommodated by multiplying academic-year salaries by 11/9 to adjust to a calendar-year scale.

Industry groups—The classification of industrial organizations to form industry groups was accomplished in conformance with the Enterprise Standard Industrial Classification (Enterprise SIC) codes listed by the Securities and Exchange Commission.⁵ Industrial organizations cited by respondents as their principal employer were

⁵ Securities and Exchange Commission, *Directory of Companies Filing Annual Reports with the Securities and Exchange Commission* (Washington, D.C. 20402, Superintendent of Documents, U.S. Government Printing Office), December 1972.

TABLE A-2.—SCIENCE AND ENGINEERING FIELD
CLASSIFICATION OF SPECIALTIES—1973
DOCTORAL ROSTER SURVEY

FIELD	Specialty code
All fields	000 to 799
Physical scientists	101 to 299
Chemists	200 to 299
Physicists and astronomers	101 to 199
Mathematical scientists	000 to 060, 082 to 099
Mathematicians	000 to 052 060, 082 to 099
Statisticians	055
Computer specialists	080
Environmental scientists	301 to 399
Earth scientists	301 to 360 368, 369, 391 396, 399
Oceanographers	370, 397
Atmospheric scientists	380
Engineers	400 to 499
Life scientists	500 to 579
Biological scientists	540 to 579
Agricultural scientists	500 to 519
Medical scientists	520 to 539
Psychologists	600 to 699
Social scientists	700 to 799
Economists	720, 725
Sociologists/anthropologists	700, 710
Other social scientists	703, 708, 709, 729, 740 to 799
Out of scope	841 to 899

TABLE A-3—CLASSIFICATION OF INDUSTRY GROUPS

Industry group	Enterprise SIC code
MANUFACTURING	
Chemicals and allied products	281-289
Electrical equipment and communication	363-369, 481-489
Petroleum and refining	291-299, 131-139
Transportation and ordnance	348, 371-379
Professional and scientific equipment	381-387
Machinery	351-358
Other manufacturing	201-275, 301-345, 349, 391-399
NONMANUFACTURING	
Agriculture, forestry, and fisheries	011-021
Mining	100-120, 140
Contract Construction	150-171
Wholesale and retail trade	501-599
Finance, insurance and real estate	601-679
Services	701-899
Other	400-478, 491-499
NONCLASSIFIED	
All other companies	991

classified by the assigned industry codes which were then combined to form industry groups. Table A-3 presents the classification scheme which was used to form the industry groups identified in this report.

Sampling errors—The statistics presented in this report reflect random errors introduced due to sampling. Detailed tables of sampling errors are available upon request from the Division of Science Resources Studies.

APPENDIX B

Detailed Statistical Tables

TABLE B-1—GENERAL CHARACTERISTICS OF DOCTORAL SCIENTISTS AND ENGINEERS EMPLOYED BY BUSINESS AND INDUSTRY: 1973

	Number	Percent	Median salary ¹
Total	50,000	100	\$23,400
Sex			
Men	49,100	98	23,500
Women	900	2	19,700
Field			
physical scientists	19,200	38	23,000
Chemists	15,300	31	22,800
Physicists/astronomers	3,900	8	23,800
Mathematical scientists	900	2	24,200
Mathematicians	700	1	24,000
Statisticians	200	(²)	25,300
Computer specialists	1,100	2	22,700
Environmental scientists	2,000	4	23,100
Earth scientists	1,900	4	23,100
Oceanographers	100	(²)	(⁴)
Atmospheric scientists	(²)	(²)	(⁴)
Engineers	17,300	35	23,500
Life scientists	6,800	14	23,500
Biological scientists	3,200	6	23,100
Agricultural scientists	1,800	4	22,300
Medical scientists	1,700	4	25,400
Psychologists	1,500	3	28,300
Social scientists	1,200	2	28,000
Economists	800	2	30,700
Sociologists/anthropologists	100	(²)	(⁴)
Other social scientists	400	(²)	25,900
Age			
24 or under	(²)	(²)	(⁴)
25-29	2,000	4	17,700
30-34	11,900	24	20,300
35-39	10,200	20	22,800
40-44	8,100	16	24,700
45-49	6,400	13	27,500
50-54	5,700	11	28,500
55-59	3,400	7	28,100
60-64	1,600	3	28,600
65-69	500	1	29,300
70 or over	200	(²)	(⁴)
No report	100	(²)	(⁴)
Primary Work Activity			
Research and development	23,200	46	21,700
Basic research	3,400	7	21,800
Applied research	12,800	26	21,700
Development	6,900	14	21,400
Management or administration	17,300	35	28,100
of R&D	12,500	25	27,300
of other than R&D	3,000	6	31,000
of both	1,800	4	29,400
Teaching	101	(²)	(⁴)
Consulting	2,301	5	24,900
Sales/professional services	1,400	3	22,700
Other	2,500	5	(²)
No report	3,200	6	23,600
Federal Support Status:			
Receiving support	11,600	23	23,900
No support	37,400	75	23,300
Status unknown	600	1	21,400
No report	400	1	24,500
Citizenship:			
USA	46,400	93	23,600
Foreign	3,500	7	21,000
No report	100	(²)	(⁴)
Race:			
White/Caucasian	43,900	88	23,600
Black/Negro	300	1	22,700
American Indian	(²)	(²)	(⁴)
Asian	3,100	6	21,300
Other	100	(²)	(⁴)
No report	2,700	5	23,600
Employment status:			
Full-time employed	49,000	98	23,400
Science or engineering	46,300	93	23,300
Nonscience or engineering	2,700	5	26,400
Part-time employed	1,000	2	(²)
Science or engineering	900	2	(²)
Nonscience or engineering	100	(²)	(⁴)
Postdoctoral appointees	100	(²)	(⁴)

¹ Median salaries computed only for full-time employed.

² Less than 50 individuals.

³ Less than 0.5 percent.

⁴ No median computed for groups with less than 20 individuals reporting salary.

⁵ Data not available.

Note: Detail may not add to totals because of rounding.

SOURCE: National Science Foundation.

TABLE B-2.—NUMBER OF DOCTORAL SCIENTISTS AND ENGINEERS IN BUSINESS AND INDUSTRY,
BY FIELD, PRIMARY WORK ACTIVITY, AND INDUSTRY GROUP: 1973

	Manufacturing industry										
	Total	Total	Chemicals & allied products	Electrical equipment & communication	Petroleum & refining field	Transporta- tion & ordnance	Professional & scientific equipment	Machi- ery	Other manufac- turing	Nonmanu- facturing industries	Non- classified companies
Total	50 000	40 600	14 200	7 300	4 300	4 100	2 800	2 600	5 400	5 100	4 300
FIELD											
Physical scientists	19 200	17 600	8 400	1 900	1 500	1 100	1 700	700	2 200	700	900
Chemists	15 300	14 300	8 200	800	1 400	400	1 200	300	2 100	400	600
Physicists/astonomers	3 900	3 200	200	1 200	100	700	500	400	100	300	300
Mathematical scientists	900	600	100	200	(¹)	100	(¹)	100	100	100	100
Computer specialists	1 100	900	100	300	100	100	100	300	(¹)	100	100
Environmental scientists	2 000	1 300	200	100	800	100	(¹)	100	200	300	300
Engineers	17 300	14 000	2 000	4 300	1 700	2 600	600	1 300	1 600	2 000	1 400
Life scientists	5 800	5 400	3 500	200	100	(¹)	300	100	1 100	800	700
Biological scientists	3 200	2 600	1 600	200	100	(¹)	200	100	500	300	300
Agricultural scientists	1 800	1 200	500	(¹)	(¹)	(¹)	(¹)	(¹)	600	400	200
Medical scientists	1 800	1 500	1 300	(¹)	(¹)	(¹)	100	(¹)	(¹)	100	100
Psychologists	1 500	500	100	200	(¹)	100	(¹)	100	100	400	500
Social scientists	1 200	500	100	100	100	100	(¹)	(¹)	100	500	300
PRIMARY WORK ACTIVITY											
Total	50 000	40 600	14 200	7 300	4 300	4 100	2 800	2 600	5 400	5 100	4 300
Research and development	23 200	20 600	6 700	4 300	2 100	2 400	1 500	1 600	2 000	1 500	1 000
Basic research	3 400	3 100	1 500	400	300	200	300	200	200	100	100
Applied research	12 800	11 500	3 800	2 300	1 400	1 400	800	600	1 300	900	500
Development	6 900	6 100	1 400	1 600	500	800	400	700	600	400	300
Management or administration	17 300	14 600	5 200	2 500	1 500	1 400	1 000	700	2 400	1 600	1 000
Of R&D	12 500	10 900	4 000	2 000	1 000	1 100	800	400	1 700	1 000	500
Of other than R&D	3 000	2 200	800	200	400	100	100	100	500	600	300
Of both	1 800	1 500	400	200	200	200	100	100	300	100	200
Consulting	2 300	500	200	100	100	(¹)	(¹)	100	100	600	1 100
Sales/professional services	1 400	700	400	(¹)	100	(¹)	(¹)	(¹)	100	100	500
Other	2 500	1 800	700	100	300	100	100	100	400	500	300
No report	3 200	2 300	1 000	100	300	200	100	100	400	600	500
Less than 50 units											

¹ Less than 50 individuals.

Note: Detail may not add to totals because of rounding.

SOURCE: National Science Foundation.

TABLE B-3.—NUMBER OF DOCTORAL SCIENTISTS AND ENGINEERS IN BUSINESS AND INDUSTRY,
BY FIELD AND PRIMARY WORK ACTIVITY: 1973

Field	Research and development					Management or administration					Sales/ professional services			No report
	Total	Basic research	Applied research	Development	Total	Of R&D	Of than R&D	Other	Teaching	Consulting				
Total	50,000	23,200	3,400	12,800	17,300	12,500	3,000	1,800	100	2,300	1,400	2,500	3,200	
Physical scientists	19,200	9,900	2,300	6,200	1,400	6,400	5,000	800	600	300	400	900	1,200	
Chemists	15,300	7,400	1,700	4,600	1,100	5,400	4,200	800	500	200	400	800	1,100	
Physicists/astronomers	3,900	2,500	600	1,500	300	1,000	800	100	100	100	100	100	100	
Mathematical scientists	900	500	(¹)	400	100	200	100	(¹)	(¹)	100	(¹)	(¹)	(¹)	
Mathematicians	700	400	(¹)	300	(¹)	200	100	(¹)	(¹)	100	(¹)	(¹)	(¹)	
Statisticians	200	100	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	
Computer specialists	1,100	700	100	200	400	300	200	1,100	(¹)	(¹)	(¹)	(¹)	(¹)	
Environmental scientists	2,000	700	100	500	100	700	300	200	200	200	(¹)	200	100	
Earth scientists	1,900	700	100	500	100	700	300	200	(¹)	200	(¹)	200	100	
Oceanographers	100	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	
Atmospheric scientists	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	
Engineers	17,300	8,700	200	4,000	6,200	4,400	1,100	700	(¹)	900	200	700	700	
Life scientists	6,800	2,200	600	1,200	400	2,800	2,200	400	300	300	400	400	800	
Biological scientists	3,200	1,200	400	500	100	1,200	900	100	100	100	200	200	400	
Agricultural scientists	1,800	500	(¹)	300	100	600	600	100	100	100	100	200	200	
Medical scientists	1,800	500	100	300	100	600	700	100	100	(¹)	100	100	200	
Psychologists	1,500	300	100	200	100	400	200	100	100	300	200	100	100	
Social scientists	1,200	200	(¹)	200	(¹)	400	100	200	100	200	100	200	100	
Economists	800	200	(¹)	100	(¹)	300	100	100	(¹)	100	100	100	100	
Sociologists/anthropologists	100	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	
Other social scientists	400	100	(¹)	(¹)	100	(¹)	100	(¹)	(¹)	100	(¹)	100	(¹)	

¹ Less than 50 individuals.
Note: Detail may not add to totals because of rounding.
SOURCE: National Science Foundation.

TABLE B-4.—MEDIAN ANNUAL SALARIES OF DOCTORAL SCIENTISTS AND ENGINEERS IN BUSINESS AND INDUSTRY,
BY FIELD AND PRIMARY WORK ACTIVITY: 1973

Field	Research and development				Management or administration							
	Total	Basic research	Applied research	Development	Total	Of R&D	Other than R&D	Of both	Teaching	Consulting	Sales/professional services	No report
Total	\$23,400	\$21,700	\$21,700	\$21,400	\$28,100	\$27,300	\$31,000	\$29,400	()	\$24,900	\$22,700	\$23,600
Physical s. ientists	23,000	21,600	21,900	21,400	27,500	28,800	29,600	32,100	()	26,100	22,300	23,600
Chemists	22,800	21,200	21,600	21,200	27,100	26,300	29,400	33,100	()	()	22,400	23,800
Physicists/astronomers	23,800	22,700	22,800	22,200	29,100	28,900	()	()	()	()	()	22,600
Mathematical scientists	24,200	23,400	()	23,400	30,800	()	()	()	()	()	()	()
Mathematicians	24,000	23,500	()	23,300	()	()	()	()	()	()	()	()
Statisticians	25,300	()	()	()	()	()	()	()	()	()	()	()
Computer specialists	22,700	21,500	()	22,800	27,700	27,500	()	()	()	()	()	()
Environmental scientists	23,100	21,200	()	21,400	27,000	26,500	28,300	24,600	()	24,900	()	()
Earth scientists	23,100	21,200	()	21,500	27,100	26,600	28,300	24,500	()	25,400	()	()
Oceanographers	()	()	()	()	()	()	()	()	()	()	()	()
Atmospheric scientists	()	()	()	()	()	()	()	()	()	()	()	()
Engineers	23,500	21,800	22,400	21,900	26,500	27,700	30,700	29,400	()	24,100	21,200	23,100
Life scientists	23,500	20,500	20,900	19,400	27,200	27,200	29,400	25,400	()	22,000	23,300	24,100
Biological scientists	23,100	20,800	20,900	()	27,100	27,300	()	()	()	()	()	24,200
Agricultural scientists	22,300	18,500	18,900	()	25,500	25,200	()	()	()	()	()	22,000
Medical scientists	25,400	21,800	()	22,600	29,300	29,100	()	()	()	()	()	27,200
Psychologists	28,300	25,700	()	26,000	36,400	32,500	36,600	()	()	27,100	26,100	28,800
Social scientists	28,000	24,100	()	26,100	36,300	()	42,500	()	()	35,900	()	()
Economists	30,700	26,000	()	26,100	38,200	()	()	()	()	()	()	()
Sociologists/anthropologists	()	()	()	()	()	()	()	()	()	()	()	()
Other social scientists	25,900	()	()	()	()	()	()	()	()	()	()	()

No median computed for groups with less than 20 individuals associated.

* No median computed for groups with less than 20 individuals reporting salary.
Note: Median salaries computed only for full-time employed.
SOURCE: National Science Foundation.